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ABSTRACT

This paper, in reflecting on socioeconomic trends that will affect higher education in the 1990s, argues for a "postindustrial" university model. The paper predicts that the current fiscal crisis in American higher education will persist throughout the 1990s as a result of: (1) slowly rising state appropriations, (2) market constrains on pricing, (3) non-deferrable capital maintenance requirements, (4) a "baby boom echo", and (5) faculty shortages by the end of the 1990s. The argument suggests that the convergence of the first three trends has lead to a fiscal crisis that will only intensify as the fourth and fifth trends strike campuses during the mid- and latter 1990s. The paper goes on to suggest that academic administrators are responding by emulating the restructuring strategy pursued by private corporations during the previous decade. After discussing the limitations of this response, the paper advances an alternative, the postindustrial model. This model structures academic labor through selective excellence in which institutions eliminate weak programs and maintain strength in fewer areas; with flexible specialization in which the workforce is organized to allow quick shifting from one task to another; and by workforce dualization (stable, well-paid flexible specialists and a peripheral workforce of temporary and part-time employees). Included are 86 endnotes. (Author/JB)

THE POSTINDUSTRIAL UNIVERSITY:

FISCAL CRISIS AND THE CHANGING STRUCTURE OF ACADEMIC LABOUR

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ABSTRACT

The Postindustrial University:

Fiscal Crisis and the Changing Structure of Academic Labour

The current fiscal crisis in American higher education will persist throughout the 1990s as a result of five structural constraints: 1. slowly rising state appropriations, 2. market constraints on pricing, 3. non-deferrable capital maintenance requirements, 4. a "baby boom echo," and 5. faculty shortages (by the end of the 1990s). The convergence of the first three trends has already led to a burgeoning fiscal crisis in U.S. higher education that will only intensify as the fourth and fifth trends strike campuses during the mid- and latter 1990s. The thesis of the paper is that academic administrators, as in previous reform cycles, are responding to the fiscal crisis by emulating the restructuring strategy pursued by private corporations during the previous decade. The author argues that a postindustrial model of higher education is emerging that will restructure academic labour around the principles of selective excellence, flexible specialisation, and workforce dualization.

THE POSTINDUSTRIAL UNIVERSITY:

FISCAL CRISIS AND THE CHANGING STRUCTURE OF ACADEMIC LABOUR

The organizational development of American higher institutions has been driven by a cycle of fiscal crises that periodically catalyze "academic efficiency" movements among business leaders, university administrators, and state officials.[1] During each reform cycle, higher institutions have typically responded to these movements by adopting the latest organizational structures and workplace routines of leading corporations as a solution to their fiscal crisis. The 1990-92 recession has certainly accelerated yet another fiscal crisis in American higher education. Eighty-six percent of all U.S. higher institutions report that in real dollars operating budgets either declined or were flat in the two-year period from 1990 to 1991.[2] In fiscal year 1992, state governments made total appropriations to higher education that were less than the previous year's total appropriations for the first time in at least three decades.[3] As a result, increasing numbers of both public and private institutions have responded with temporary employee furloughs, hiring freezes, and other staff reductions.[4]

However, in a remarkably brief time, higher education administrators and state government officials have shifted from a policy of recession-induced cutbacks to the formulation of long-term strategic plans that are restructuring the fundamental operations and design of American higher institutions. The rapid shift to strategic planning recognizes that the current recession

is merely the beginning of a fiscal crisis in higher education that will likely extend through the entire decade of the 1990s and perhaps longer. Seventy-one percent of college and university administrators now cite "adequate finances" as the main challenge facing higher institutions over the next five years.[5] Indeed, this paper will argue that in responding to the fiscal crisis of the 1990s, higher education officials are beginning to emulate a new postindustrial model of business enterprise that emphasizes market specialization and workforce flexibility as a strategy for maintaining competitiveness and efficiency.[6] In the new postindustrial university, therefore, academic labour will be organized in terms of selective excellence, flexible specialisation, and workforce dualization.

A Decade of Fiscal Crisis

A fiscal crisis is a long-term tendency for expenditures to increase more rapidly than revenues.[7] Thus, in a fiscal crisis operating deficits grow larger each year and, if there are external constraints on revenue growth, the primary option for closing this structural gap is to restructure an organization so as to reduce the growth in long-term costs and expenditures. A key assumption of this paper is that revenues for higher education will not increase substantially during the 1990s, despite rising costs; thus, placing increased pressures on higher institutions to fundamentally restructure their operations.

Revenues

Public institutions enroll seventy-eight percent of students in higher education and state appropriations provide the majority of these institutions' annual operating budgets. Importantly, state support for higher education is not likely to rebound significantly even after the recession because states, as a whole, are facing structural gaps in their own budgets. Thus, despite total tax increases of ten billion dollars in 1991, fifteen billion dollars in 1992, and unprecented budget cuts in both years, thirty states still faced unresolved budget deficits at the end of the 1992 fiscal year. Many states face similar problems as they enter the 1993 fiscal year.[8] Consequently, Raymond C. Scheppach, executive director of the National Governor's Association (NGA), observes that: "The states now realize they are not just dealing with short-term cyclical budget problems. They recognize that revenue growth in the 1990s will be moderately if not signficantly lower than in the 1980s."9 As a result, the most recent Fiscal Survey of the States, conducted annually by the National Governor's Association, concludes that throughout the nation state officials have begun implementing "a permanent reduction of state governments that will force attention on...[the] restructuring of major state services such as education, welfare and health."[10]

There are least two reasons to anticipate that the pressures to restructure public higher education will be particularly strong, for in all likelihood, higher institutions will be expected to operate, in real terms, off the lower financial base

established during the recession. First, despite real growth in state appropriations to higher education during the 1980s, a subtle deprioritization of public higher education was already underway as states slowly reduced the percentage of state budgets allocated to higher education in order to fund competing priorities and programs.[11] In 1979-80, states allocated 8.3% of their tax dollars to higher education, but by 1989 the percentage had fallen to 7.2% and, during the recession, the tendency merely accelerated as allocations to higher education fell to 6.9% of state tax revenues in 1990-91.[12] Second, it is unlikely that higher education will be able to improve its relative budget status because of competition from other state programs. Fiscal analyses prepared by the National Conference of State Legislatures emphasize that for the foreseeable future any increases in state revenues will be consumed entirely by inflation and by higher costs in entitlement programs such as K-12 education, aid to families with dependent children, and Medicaid.[13] Thus, even if additional tax increases are forthcoming, and even if state revenue projections are unduly pessimistic, the California Postsecondary Education Commission (CPEC) warns that "higher education will be competing over the coming years with other State services for limited funds" and it is not likely, when judged against other claimants, that higher education will be viewed as a major social priority.[14]

At the same time, both public and private institutions are encountering severe market constraints on their ability to raise student tuition and fees. From a long-term perspective, it is

important to note that tuition and fee increases during the 1980s, outstripped both the Consumer Price Index and real income growth. In the decade from 1979-80 to 1989-90, mandatory charges at public higher institutions increased by 109% and at private institutions they increased by 145%. The Consumer Price Index rose by only 64% during the same period.[15] Furthermore, during the same period, most Americans experienced an average six percent decline in real incomes due to the long-term restructuring of the American economy.[16]

The disequilibrium between real incomes and mandatory charges that developed during the 1980s was merely exaccerbated by the recession as public institutions, especially, adopted large tuition increases to offset state budget cuts. However, market constraints on price increases have also made this strategy counterproductive beyond a limited point.[17] The expected impact of price disequilibrium is that as institutions raise tuition to fill the gap created by declining state appropriations, student enrollments will decline which, in turn, creates a need for more tuition increases to offset declining enrollments, and so on, in a downward spiral. For example, during four year period from Fiscal Year 1989-92, the University of Ma.sachusetts System doubled tuition and fees to offset a $150 million, or thirty-five percent, reduction in state appropriations. This enormous increase in mandatory charges only replaced sixty-two percent of the revenue lost to state budget cuts. However, further increases were constrained by the fact that each time tuition and fees increased in Massachusetts,

enrollments declined (ten percent over the four year period), and the enrollment declines were greatest on those campuses with the highest mandatory charges.[18] Thus, it became evident that the Massachusetts system was quickly approaching a point at which further increases in tuition and fees would actually produce lower revenues because of accelerating declines in enrollment.[19] Private institutions are encountering similar difficulties with the result that some are drawing on endowment principal to fund current operations and student scholarships.[20] Thus, after a decade in which mandatory charges increased an average of eight to thirteen percent annually, the current rate of increase is apparently slowing to the inflation level as most institutions announced 1992-93 increases of only 2% to 6%.[21] Moreover, since the number of high school graduates and, therefore, the potential market for higher education will continue to decline through the 1993-94 academic year, and will not increase until the 1994-95 academic year, competition for a declining supply of students will also act as a further break on tuition and fee increases at least until the second half of the decade.

Expenditures

Despite revenue constraints in the 1990s, there are at least three structural factors that could increase the real costs of higher institutions: (1) non-deferrable capital maintenance requirements, (2) a "baby boom echo" that will increase enrollments beginning in the mid-1990s, and (3) faculty shortages created by a rapidly aging workforce toward the end of the 1990s.

Hence, over the course of the current decade, a series of "expenditure waves" will engulf higher institutions each time they successfully stabilize their finances.

First, in the midst of recession, American higher institutions have found that deferred capital maintenance and replacement schedules cannot be deferred any longer. A comparative study of space utilization standards prepared for the California Postsecondary Education Commission finds that "a need to renovate or replace many facilities built in the 1950s and 1960s is now emerging" throughout the United States.[22] Indeed, a Coopers & Lybrand report prepared for the Association of Physical Plant Administrators estimates that $70 billion is needed to fund the existing backlog in capital renewal and replacement needs on American campuses. More than $20 billion of this amount is needed immediately to address priority repairs and renovations.[23]

Second, even if higher institutions successfully meet their capital renewal and deferred maintenance backlogs in a timely manner, it will only be in time to accomodate the emerging baby boom echo. The U.S. Department of Education projects that the current decline in the number of high school graduates will start to reverse in the 1994-95 academic year.[24] Similarly, the Western Interstate Commission for Higher Education projects that in the decade from 1991-92 to 2001-02 the number of high school graduates will increase by more than ten percent in over half the states (26) and, it seems evident, that most of this increase will be compressed into the second half of the 1990s.[25] The situation will vary in intensity from state to state, but rising

enrollments will generate two additional demands on operating budgets; first, for more instructors and, second, for expanded physical plant.

California is no doubt the most extreme case, because the number of high school graduates is projected to grow by 49% during the 1990s.[26] Yet, CPEC estimates that to fund enrollment growth alone, at current levels, postsecondary education budgets would require annual real growth of 2.3% from 1990 through 2005.[27] Yet, during the 1990-92 recession, there has been a real decline of 6.2% in state appropriations for higher education, and a further reduction of 15% will be implemented during fiscal 1993.[28]

Similarly, CPEC estimates that under current space utilization guidelines, it would take $514 million in bond sales each year from 1991 through 2005 to generate the capital outlays necessary to accomodate enrollment expansion in California.[29] Under current projections, higher education would have to more than double its share of the state's total annual bonding capacity from 11% to 25.7% Yet, CPEC's ominous conclusion is that: "Juxtaposing this increase...against other future infrastructure needs of the State for schools, prisons, highways, seismic upgrading and other projects, leads the Commission to doubt that higher education can more than double its share of California's total bonding capacity over the next 15 years."[30] This is not an atypical dilemma for many states.

Finally, a third source of fiscal pressure on American higher institutions will result from a shifting balance in the

academic labor market. Gregory Loozier and Michael J. Dooris predict that retirement rates will increase by 25% to 40% over present rates by 2003.[31] Similarly, Michael D. McGuire and Jane A. Price estimate that the annual faculty replacement rate in 2003 will be 37% higher than in 1989 because of increasing rates of retirement.[32] The most extensive and widely cited study of the academic labor market, by William G. Bowen and Julie Ann Sosa, concludes that some tightening in academic labor markets may begin as early as 1992-97, although they agree that the most dramatic faculty shortages will occur in the period from 1997-2002.[33] Thus, allowing for different samples and different assumptions about faculty survival rates, William G. Bowen and Jack H. Schuster argue that surveys of the academic labor market clearly point to an emerging faculty shortage in the decade from 1995 to 2005 as faculty start retiring in ever larger proportions.[34] Likewise, follow-up studies of public systems of higher education consistently confirm the predictions of a faculty shortage toward the end of the decade.[35] Importantly, as economist Ronald Ehrenberg observes, "to the extent that these projections are accurate, academic institutions will be forced by competitive pressures to increase faculty salaries in an effort to attract and retain faculty."[36]

Changes in the Academic Labour Process

The widespread reductions in state support, market constraints on further price increases, and a massive I.O.U. for deferred capital maintenance are combining to plunge American

higher institutions into a fiscal crisis. Moreover, any recovery from that underlying crisis will be offset by the increased costs of rising enrollments in the mid-1990s and the pressure will again be exaccerbated as faculty retirements accelerate into the next century. It is conceivable that the higher education system could simply implode in fiscal insolvency and deteriorating quality.[37] On the other hand, fiscal crisis has always been the midwife of institutional reform in American higher education and, throughout the twentieth century, major institutional restructurings have taken the form of academic efficiency movements.

A standard contemporary definition of academic efficiency is "using the minimum necessary resources for intended (as opposed to actual) results."[38] Academic efficiency may be obtained at both a systemic and an institutional level. According to this definition, the most efficient state higher education systems tend to be characterized by a division of labor between institutions and economies of scale in the concentration of student enrollments.[39] Consequently, most states have established a three tier public higher education system that divides educational tasks between universities, four-year undergraduate colleges, and two-year community colleges. This division of labor promotes specialization within each tier, allows campuses to build economies of scale, and duplicates facilities only as necessary for maintaining access. Hence, systematization allows costly low-demand programs (e.g., graduate education) to be concentrated in large universities, while ready access to lower

division and community service programs can be provided at low cost in community colleges. Systemic efficiency is further maximized at the institutional level mainly by containing course proliferation and maximizing class sizes to achieve optimum teaching productivity.[40]

In the United States, "personnel typically constitute eighty-five percent of any academic institution's instructional budget, with the faculty payroll the largest single component."[41] Thus, as UCLA Chancellor Charles Young recently emphasized to his own staff: "The only way to save a large amount in a labor-intensive situation is to lower its cost."[42] In principle, institutions can respond to rising costs and faculty shortages either with supply-side interventions to increase the number of Ph.D.'s or with demand-side interventions related to faculty compensation and working conditions. Supply-side strategies will be ineffective in the short- to intermediate-term, partly because of the time-lag in producing new Ph.D.s, and partly because the number of college entrants will be falling just prior to the onset of expected faculty shortages.[43] Consequently, for most institutions, demand-side interventions will be the only available option.

Furthermore, if the projections of anticipated faculty shortages are accurate, it is unlikely that administrators will be able to drive down the real compensation of regular faculty members without exaccerbating the expected shortages. This dilemma will be especially acute in the coming decade because education administrators curtailed the hiring of new assistant

professors in the early 1970s. Thus, the skewed age distribution that will lead to accelerating faculty retirements has also created a situation where there will be very few assistant and associate professors to fill the vacuum left by the massed retirements of senior faculty.[44] This means that the only way for a college to get higher ranked faculty (associate and full professors) will be to entice them away from another college; thus escalating the competition for tenured senior faculty.[45]

Consequently, if higher institutions are control costs effectively, they will increasingly have "to improve the management and/or productivity of the faculty itself, in order to mitigate the need for new faculty."[46] In fact, labor economist Daniel S. Hamermesh concludes: "The evidence is overwhelming...that the demand for faculty responds negatively to our wages. The desireable outcome [for faculty]...will be offset in part as institutions of higher education react to pressures on salaries by cutting the number of faculty they wish to hire."[47]

Selective Excellence

The most common theme in recent strategic plans and restructuring proposals is the idea that individual institutions must "sharpen their focus" by concentrating on specialized areas of institutional strength and areas of high student demand. As a result, more and more institutions are abandoning the goal of offering majors (or Ph.D.s) across the entire the universe of academic fields in favor of selective excellence.[48] In the name of eliminating "unnecessary duplication," comparatively weak

academic programs and areas of low student demand are being reduced to a service role or else completely eliminated so that resources and personnel can be reallocated to offset rising costs and to maintain academic strength in a fewer number of fields.[49] Hence, in dealing with the fiscal crisis, colleges and universities are adopting a policy of "narrow but deep cuts," (as opposed to across-the-board reductions), that entail the elimination or phase out of entire majors and departments.[50] An internal survey conducted by the Association of American Universities found that nearly sixty percent of its U.S. members are consolidating, eliminating, or reducing academic departments.[51]

Importantly, efforts to restructure American universities around the theme of selective excellence are not likely to meet with much internal resistance from faculty for two reasons. First, as faculty retirements accelerate, it will be possible to restructure academic programming by reallocating vacant faculty lines. Strategic planners and university administrators are increasingly aware that the anticipated surge in retirements presents a once-in-a-century opportunity to completely recast academic programs. For example, the California Postsecondary Education Commission expects that "as senior faculty members retire, there will be an opportunity for new appointments to be made in areas of current enrollment demand, which will result in a net reallocation of positions away from some fields and toward others."[52] Similarly, a Massachusetts commission on higher education observes that "the substantial projected turnover of

state college faculty during the 1990's will provide an unprecedented opportunity to refocus campus missions and programs and build new program strength."[53] Hence, as administrators become less hampered by the institutional rigidities created by a heavily tenured faculty, faculty lines can be reallocated more easily to areas of selective strength and high student demand.

Second, with only a few exceptions, the strategy of selective excellence is being implemented in cooperation with faculty, partly in order to safeguard future salary increases and partly to protect their own programs from the alternative of across-the-board reductions. Proposals for program eliminations at Cornell, Johns Hopkins, Yale, Princeton, and Washington Universities have all been been linked to the goal of providing faculty salary increases in the future.[54] It is difficult to imagine many faculties giving up pay raises for the sake of programs or colleagues that they consider sub-par anyway.

Significantly, it is already becoming evident that programs with a high degree of multidisciplinary support within an institution are the programs that are most likely to be targeted for selective excellence. This is because a relatively small departmental nucleus can better offer programming of high quality when it can draw on the personnel and resources of cognate departments. Similary, those programs or departments that are not targeted for selective excellence will fare better if they develop a network of interdepartmental connections that wire its members into an institution's targeted areas of selective excellence. Furthermore, as administrators target and

concentrate institutional resources, faculty will be induced to create intra-campus networks either to build an area of selected excellence or as a way of gaining access to scarce targeted resources. Conversely, departments and individuals which fail to develop high levels of programmatic interface and interdisciplinary connectivity will simply "wither on the vine" until they are phased out or terminated.

Therefore, paradoxically, the move toward greater institutional specialization will facilitate and encourage greater interdisciplinary activities among faculty. The primary peer group for more and more scholars will not be discplinary or departmental, but interdisciplinary focus groups that collaborate in research and teaching. Indeed, the Arizona Board of Regents' Task Force on Excellence, Efficiency, and Competitiveness found in its survey of university faculty that "a substantial interdisciplinary thrust" was already considered "a valuable asset" in recruiting.[55] Consequently, the Arizona task force recommends a policy of breaking down barriers between departments and even between campuses in order to facilitate more interdisciplinary cooperation.

The two most dramatic recommendations of this sort have been proposed by Robert L Carothers, the president of the University of Rhode Island, and by the Massachusetts Commission on the Future of the State College and Community College Systems. Carothers hopes to reverse U.R.I.'s "downward spiral" by abolishing existing departments and reconfiguring the entire university around eight research centers.[56] The centers would be

constructed around teams of faculty from a variety of disciplines who share common interests and strengths in areas such as marine studies, families and children, or human culture. The precise number and focus of the research centers is to emerge ostensibly from deliberations among faculty and deans aimed at identifying the institutions's core strengths. In a further departure, undergraduate students would each be enrolled in a research center, instead of a department, and by their senior year every student would be a full member of a research center in some capacity. In this manner, Carothers hopes to reemphasize the University's research mission, carve out targeted areas of selective excellence, and offer a different type of undergraduate education that erases the boundary between teaching and research.

Similarly, in Massachusetts, a legislative commission has recommended that the state focus its scarce resources cost-effectively by redesigning each of its nine public colleges around distinctive "focus areas" to be assigned on the basis of current enrollment patterns and regional labor market demand. The commission suggests that a more efficient allocation of resources could be achieved if each college was to adopt a profession-based focus area such as health, communications, or applied science and technology. Thus, each college would offer "a limited core program of majors," while programs that do not complement a campus' unique mission would be "phased out and program resources reallocated within the campus."[57]

Most of the degrees awarded by each college would be in fields clustered around a particular focus area. For example, if

a college had health as its focus area, the major departments and most degrees awarded would be in fields such as nursing and medical laboratory science. While majors could be obtained in other selective fields, their faculty would be specialized in some aspect of the college's focus area. Hence, faculty in education could specialize in health education, political scientists in health care policy, or business in hospital and health care administration. In this case, traditional departments would be maintained, but the faculty's center of gravity in each college would shift from departments toward a common interdisciplinary focus area.[58] Although far from being implemented, these two proposals certainly represent the final destination of a "lean and mean" fiscal strategy for universities and four-year colleges that seek to pursue the strategy of selective excellence.[59]

Flexible Specialisation

A strategy of selective excellence will work best, and achieve the highest cost savings, where it is linked to flexible specialisation in the labour process. Flexible specialisation consists of organizing a workforce so that highly skilled analytic and technical personnel can be shifted readily from one task to another as required by production demands. In general, the most highly skilled and specialised workers in the postindustrial labour process are those who deal in symbolic and conceptual processes and whose work integrates computer-assisted production directly into the labour process (e.g.,

technicians).[60] College and university faculty are postindustrial workers almost by definition, although their labour process has not been characterised by the kind of flexible specialisation that is generally associated with the postindustrial workforce.

First, the postindustrial worker has more versatility than the traditional professor who is restricted by displinary boundaries and by firm distinctions between labour and management. On the other hand, flexible specialisation involves the ability to apply one's specialised skills to a wide range of problems and production processes. Second, the postindustrial worker has more mobility than the traditional professor, because their versatility allows them to move more readily between industries, institutions, sectors, and levels of the workforce. Up to the present, professors have been organized more like traditional craft workers whose skills are closely identified with a closed guild (discipline) which they guard jealously against potential interlopers. Third, the idea that a Ph.D. confers a lifetime membership in the academic guild is contrary to the postindustrial ethos of continuous education. Quite the contrary, flexible specialists must continually upgrade their skills and knowledge to meet the challenge of ever new technologies and skill requirements.[61] Finally, because of their versatility, mobility, and continuous education, flexible specialists pursue careers that are "non-linear," unlike traditional professors who measure career progress as a straight-

line series of vertical steps from graduate school to full professor.

However, the structural pressures of a fiscal crisis are now creating powerful incentives for administrators and education officials to initiate a postindustrial transformation of the academic labour process. First, as I have already noted, the strategy of selective excellence is likely to work best where areas of targeted excellence have multidisciplinary support from many sectors of the institution. At the same time, if service departments are to be reduced in number and size and, yet, still contribute directly to an institution's focus area(s), it will become increasingly inefficient in the post-industrial university to have one's best-educated, most skilled, prominent, scarce, and highest paid faculty teaching lower-division service courses. Nevertheless, at most colleges and universities, faculty currently justify their full-time status by teaching lower-division survey courses that do not require any great specialisation and, while necessary to a general education, may not be directly relevant to an institution's specialised areas of selected excellence. This structuring of faculty work loads is retained mainly because of inflexible departmental and institutional boundaries, even though many faculty are already capable of teaching upper-division cognate courses in other fields. For example, there is no reason why someone who is broadly trained in political theory could not also teach the standard courses in the history of ideas, political philosophy, and introduction to sociological theory. Yet, because of

inflexible disiplinary boundaries, a well-staffed college or university is likely to hire four specialists to teach duplicate or overlapping courses in political science, history, philosophy, and sociology and to give students credit for essentially the same course under different disciplinary names. It will be more efficient, and probably make more sense educationally, to hire one or two people (instead of four) to teach cognate upper-division and graduate courses exclusively across two to four different "departments."[62] This kind of flexibility will be facilitated to a greater degree if research, teaching, and faculty appointments are attached to research centers and focus areas, instead of traditional departments.

Such arrangements would allow institutions to maximize their use of the most skilled and most expensive components of the academic workforce, raise salaries to meet faculty shortages, and manage overall personnel costs through workforce reductions. Interdisciplinary linkages will allow institutions to reduce the number of core faculty staffing the programs targeted for excellence and to have the smaller number of remaining service deparments contribute directly to the core mission of the institution. Faculty are also likely to be more receptive to such arrangements once administrators recognize their potential savings and start to offer enhanced financial inducements to the faculty who are willing to accept interdisciplinary and joint appointments. In principle, an institution could pay one individual fifty percent more than current salary and still save

in salary costs by dispensing with a second individual who would otherwise teach similar courses in a different department.

However, a major contradiction in the strategy of selective excellence is that a campus may offer outstanding programming at its particular level in some fields and, yet, offer little to no programming in other fields that are considered essential to a general education. Thus, the strategy of selective excellence is likely to accelerate the development of intra-system cooperation in the public sector, inter-institutional collaboratives in the private sector, and joint public-private ventures of various types. Although the major public universities are nominally unitary systems with a single governing board and multiple campuses; in practice, most state universities function as a loose confederation of separate institutions. However, the fiscal crisis is already leading some university officials to search for ways of unifying their separate campuses into genuinely integrated systems. There are several possibilities for system integration that are realistic with a more versatile faculty and with relatively simple technological innovations.

The same economic logic that makes interdisciplinary appointments efficient (and mutually beneficial to institutions and faculty) also applies to the relationship between campuses within a system. Each campus in a university system will usually duplicate a large number of highly trained and specialised faculty who are each teaching the same upper-division or graduate courses on different campuses. The costs of this staffing pattern are further multiplied by the fact that each of these

individuals will again be teaching lower-division, non-specialised classes to justify their full-time status. In states of relatively small geographic dimensions, such a structure makes little sense for systems confronting the exigencies of a fiscal crisis. It will make more economic sense to create a group of multi-campus "system faculty" who are employed by the university system, or jointly by two or more campuses. In this manner, high cost faculty can be deployed and rotated to different campuses, and even to different departments or programs, to avoid the duplication of high cost personnel in courses with low enrollments.

An expanded variation of this arrangement has already become possible with the current array of computer and video technologies. Daniel S. Cheever, Jr., the former president of Wheelock College, complained recently, that while many "colleges have made enormous investments in technology...this investment has not yet transformed the fundamental way - and cost - of how courses are taught...the basic economic model is not so different from the 1960s or the 1950s despite this investment in technology."[63] Similarly, New Jersey higher education officials have already concluded that "part of the solution [to resource shortages] will lie in heavier reliance on the emerging technologies in higher education" because "advances in telecommunications and computer-aided instruction will permit increased sharing of resources and will allow instruction to take place in various settings."[64] In fact, interactive video technology, cable television, satellite transmission, and

electronic mail have each made real time remote communications possible without regard to institutional boundaries. It is no longer necessary to be physically present in a classroom in order to attend and participate in a class.[65]

As a result, university systems now have the opportunity to maximize (and genuinely systematize) course enrollments through remote interative video. Courses that are underenrolled at one campus could be opened to "remote enrollments" that allow students at other campuses to attend via interactive video.[66] There is also no reason why faculty members cannot hold "e-mail office hours" to answer questions from students at remote locations. Indeed, in my own practice, I find that students are already taking the lead in initiating discussions by electronic mail, asking that copies of a syllabus or exam be downloaded and transmitted to them, and forwarding their essays back to me in the same way. These are relatively simple technologies that many universities have already introduced and they make the idea of an integrated system faculty possible even in states of large geographic size.[67]

During the deepening Massachusetts fiscal crisis, a sweeping proposal of this type was put forward by Randolph Bromery, the former chancellor of higher education in Massachusetts.[68] Bromery proposed that the state's higher institutions be organized into five regional clusters. A University of Massachusetts campus would anchor each regional cluster and each cluster would include the region's state and private liberal arts colleges and local community colleges. One of the many hoped-for

savings from regional clustering was that institutions would be able "to share courses through satellite transmission and the use of television, videos, and computers."[69] Although the proposal was dead-on-arrival, many of its individual components are being considered by the University of Massachusetts System and are already being implemented by the Five-College Consortium in western Massachusetts that consists of the University of Massachusetts at Amherst, Amherst College, Mt. Holyoke College, Hampshire College, and Smith College. A similar but less formal consortium is slowly emerging among several private colleges and universities in the suburban Boston area. In the city of Boston, several small, but closely situated colleges are moving to erode institutional boundaries by creating the so-called "Fenway University;" a collaborative arrangement in which four independent and specialized colleges will attempt to function as a single "university."[70] The New Jersey Chancellor of Higher Education has referd to such efforts as a "new collaborative model" whose twin pillars are "a more flexible departmental structure" and the development of "new relationships between institutions of higher education and other organizations."[71]

As higher institutions adopt policies of selective excellence and flexible specialisation, top faculty will become less attached to a single institution, undertake flexible assignments across disciplines and between institutions, and come to rely to an ever greater degree on the productivity of new educational technologies. The entire process should become self-reinforcing, because as more faculty become more mobile, and as

faculty shortages develop toward the end of the 1990s, the most flexible faculty will be able to command higher salaries and institutional prestige. Some strategic planners are already recommending that reward systems be modified "to encourage faculty to be flexible and to seek out new skill areas and new responsbilities" through "financial incentives, enhanced job protection, or added prestige."[72] Moreover, colleges and universities will be able to pay higher salaries to flexible specialists because each one is likely to be replacing two, three, or four retirements. Thus, new financial inducements and altered reward structures will become a powerful lure to faculty, aside from greater personal satisfaction, to embrace the interdisciplinary movement and to accept flexible assigments.[73]

Workforce Dualization

The main administrative objective of flexible specialisation is to utilize a highly trained and well-paid faculty nucleus more efficiently by having them teach a variety of upper-division cognate courses within an institution and by teaching low-demand upper-division or graduate courses at more than one institution. Thus, the flexibile specialist will be less and less involved with lower-division survey or general education courses. One result of this trend is that postindustrial universities will extend and permanently institutionalize a dual academic labour market.

A dual labour market is "a systematic and individous stratification of employment opportunities into two sectors

characterized by different working conditions, policies for promotion, and wage structures."[74] In the dual labour market of postindustrial economies, a core workforce of flexible specialists enjoys stable and well-paid professional employment, while a peripheral workforce of temporary and part-time employees suffer uncertain employment and low pay, have little or no opportunity for advancement, and little possibility of entering the core workforce.[75] The administrative advantages of a peripheral workforce are that it provides an organization's management with a low cost and highly flexibile pool of labour that can be increased or decreased rapidly and whose skill mix can be easily adjusted to meet uncertain or changing market demand.

Market conditions and fiscal incentives both combined in the mid-1970s to facilitate the emergence of a dual labour market in higher education. Conditions favorable to the emergence of a dual labour market were in place by 1972 when more than five times as many Ph.D.s were being produced as could be absorbed into higher education teaching positions.[76] The massive imbalance between academic supply and demand meant that a larger and larger percentage of new academic personnel were willing to accept temporary and part-time employment. At the same time, as individuals hired during 1960s academic boom received tenure, there was a slowdown in turnover and attrition among senior faculty. Yet, by the mid-1970s, college and university administrators were being asked to implement budget reductions due to 1975 recession and, simiultaneously, had to address

changing student interests. The combination of high tenure rates, low turnover, and declining resources created rigid and unresponsive institutions. One of the most important mechanisms for regaining institutional flexibility was to "unlock" inflexible human resources by creating a dual labour market. This policy was promoted in a well-publicized study by the Carnegie Commission on Higher Education (1972) which recommended the use of nontenure track appointments and part-time appointments as a hedge against against the possibility of future budget cutbacks and predicted declines in student enrollment.[77]

It is now well-known that higher education administrators were quite successful in creating a dual academic labour market by the late 1970s. Research universities and major four-year colleges have promoted a dualized labour market mainly in the form of a provisional faculty that consists of Ph.D.s who hold full-time non-tenure track positions. The American Association of University Professors conducted its first study of provisional faculty in 1978 and concluded there had been "a substantial increase" in the use of provisional faculty by that time.[78] Robert E. Roemer and James E. Schnitz estimate that by the late 1970s thirty percent of all new full-time appointments were in non-tenure track positions.[79]

Non-tenure track full-time positions are provisional in nature, since they usually terminate after one to three years and are nearly always conditional on minimum course enrollments and institutional revenues. Provisional faculty frequently receive a lower salary than regular faculty, carry a heavier teaching load

and usually teach multiple sections of the same course. Their assignment to introductory or remedial courses means that few provisional faculty have an opportunity to teach in their area of specialised expertise. Yet, because of the size, number, and level of courses taught by provisional faculty, they now do a considerable amount of many department's lower-division undergraduate teaching.[80]

At community colleges, and increasingly at many four-year colleges, the dualization of academic labour markets has taken the form of increased reliance on part-time faculty. The number of part-time faculty doubled during the 1970s and accounted for thirty-two percent of all college and university faculty by the end of the decade. The increase was especially dramatic at two-year colleges where the number of part-time faculty quintupled to account for fifty-one percent of all faculty teaching at two-year colleges by the end of the 1970s.[81] These proportions levelled off during the 1980s with part-timers now accounting for thirty-four of all U.S. faculty, twenty-five of the faculty at four-year institutions, and fifty-four of the faculty at two-year institutions.[82] Part-time faculty are paid even less than provisional faculty and they usually do not receive any fringe benefits. Part-time faculty are also less secure in their employment than provisional faculty because part-timers perform casual academic piecework on a course by course, semester by semester basis.

Importantly, although dual labour markets can only emerge during periods of considerable imbalance in the supply and demand

for labour, studies suggest that once they are established market conditions do not seem to affect the persistence of dual labour markets. Instead, once established, dual markets remain segmented and come to operate as two separate markets drawing on two separate pools of labour. Specifically, Leslie, Kellams, and Gunne conclude that "institutional logic," rather than the academic labour market, now controls decisions to increase or reduce the number of part-time faculty in higher institutions.[83] Roemer and Schnitz suggest that the same logic controls the hiring of provisional faculty.

In this respect, institutions are most likely to increase the number of part-time and provisional faculty when administrative decisions are controlled either by a logic of adaptation or a logic of retrenchment.[84] Adapting institutions are those with a faculty that is heavily tenured in fields with low or shrinking student demand and that have few flexible resources for moving into new fields of research and teaching. Adapting institutions also tend to occupy a weak market position so that product pricing becomes an important component in their ability to attract and retain students. Retrenching institutions have intense budget problems. As I have suggested already, the vast majority of American higher institutions will be facing both problems during the 1990s in various combinations. Consequently, the dominant institutional logic controlling administrative decision-making will be one that seeks to reduce personnel costs and to achieve greater institutional flexibility.[85] It is unlikely that trustees and administrators, baptised in the fiscal

fires of the 1990s, will readily recommit resources to fixed costs in the near future.[86] Hence, as the salaries of core faculty escalate due to the anticipated shortages, and new expenditure waves strike during the coming decade, the dominant institutional logic will be to maintain or expand dualization at the workforce periphery in order to offset fiscal pressures at the core.

Conclusion

A continuing fiscal crisis will make selective excellence, flexible specialisation, and workforce dualization the dominant themes of higher education reform in the coming decade. The overarching objective will be to create a more flexible academic workforce that can teach and conduct research in an institutional setting that is lean and mean. However, the actual configuration of the postindustrial university will depend upon the extent to which faculty interject themselves into the reform process and use reform as an opportunity for constructive innovation. In that respect, this paper has barely touched upon the actual impact of these changes on classroom routine, faculty-student interaction, research, and collective bargaining.

By the same token, it is conceivable that changes on the national level could ease the fiscal pressures that are driving higher education reform. A national health insurance program, by lifting the immense burden of Medicaid from state budgets, could create more room for growth in state higher education appropriations. A substantial increase in federal student

financial aid would ease some of the constraints on tuition and fee increases. Nevertheless, it is not likely that either scenario will transpire soon enough to reverse the current trend in the short-run. There will continue to be an underlying structural pressure for higher institutions to seek greater efficiency and flexibility in the use of academic labour.

ENDNOTES

1. David N. Smith, Who Rules the Universities? (New York: Monthly Review, 1974); Barbara Ann Scott, Crisis Management in American Higher Education (Westport, Conn.: Praeger Press, 1983); Clyde W. Barrow, Universities and the Capitalist State: Corporate Liberalism and the Reconstruction of American Higher Education, 1894-1926 (Madison: University of Wisconsin Press, 1992).

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3. Scott Jaschik, "State Funds for Higher Education Drop in Year; First Decline Since Survey Began 33 Years Ago," Chronicle of Higher Education, November 6, 1991, p. 1, 38-40.

4. The most comprehensive compendium of these developments are the state by state accounts of higher education in The Almanac of Higher Education, 1991 (Chicago: University of Chicago Press, 1991) and The Almanac of Higher Education, 1992 (Chicago: University of Chicago Press, 1992).

5. "Admininstrators' Views of Challenges Facing Institutions in the Next Five Years," The Almanac of Higher Education, 1992 (Chicago: University of Chicago Press, 1992), p.

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6. Daniel Bell, The Coming of Post-Industrial Society (New York: Basic Books, 1973); Alain Touraine, The Postindustrial Society (New York: Random House, 1971). For a critical view of postindustrialism, see Andre Gorz, Critique of Economic Reason (London: Verso, 1989).

7. James O'Connor, The Fiscal Crisis of the State (New York: St. Martin's Press, 1973), p. 9.

8. Corina L. Eckl, Anthony M. Hutchinson, and Ronald K. Snell, State Budget and Tax Actions, 1992: Preliminary Report (Denver, Co.: National Conference of State Legislatures, 1992).

9. William M. Welch, "Governors Say States Face Increasing Pinch," The Boston Globe, April 22, 1992, p. 6.

10. National Governor's Association, Fiscal Survey of the States, Washington, D.C., April 1992, p. vii-viii.

11. Howard R. Bowen and Jack H. Schuster, American Professors: A National Resource Imperiled (New York: Oxford University Press, 1986), p. 95, observe that "the growth of spending for social programs, combined with the assumption of broader responsibilities by the states...the strength of groups wanting to spend on social programs and the lack of effective organization by higher education and its constituents resulted in more resources flowing to these other programs."

12. Kent D. Halstead, State Profiles: Financing Public Higher Education, 1978 to 1991 (Washington, D.C.: Research Associates, 1991), p. 148.

13. Eckl, et al., State Budget and Tax Actions, 1992, pp.

1, 13, 17.

14. Kenneth B. O'Brien, The Dynamics of Postsecondary Expansion in the 1990s: Report of the Executive Director, California Postsecondary Education Commission Report 90-12, March 5, 1990, pp. 4-5; Higher Education at the Crossroads: Planning for the Twenty-First Century, California Postsecondary Education Commission Report 90-1, January, 1990, pp. 38-39.

15. U.S. Department of Education, Digest of Education Statistics, 1991 (Washington, D.C.: Goverrtment Printing Office, 1991), pp. 161, 298-99.

16. Lawrence Mishel and Jared Bernstein, Declining Wages for High School and College Graduates: Pay and Benefits Trends by Education, Gender, Occupation, and State, 1979-1991 (Washington, D.C.: Economic Policy Institute, 1992).

17. G. A. Jackson and G. B. Weathersby, "Individual Demand for Higher Education," Journal of Higher Education 46 (1975): 623-52 found that, except for higher income levels, the demand for higher education is relatively inelastic.

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19. U.S. Department of Education, Projections of Education Statistics to 2001: An Update (Washington, D.C.: Government Printing Office, 1990), p. 77.

20. For example, Columbia University dealt with a $50 million deficit in its FY 1992-93 budget by implementing $35 million in cuts and funded the remaining $15 million from

endowment principal. The impact of such actions is that less interest will be available in future years to fund scholarships, raises, and construction, see Anthony DePalma, "Short of Money, Columbia University Weighs How Best to Change," The New York Times, May 25, 1992, pp. 1, 25.

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27. O'Brien, The Dynamics of Postsecondary Expansion, pp. 4-5.

28. Figures on state appropriations from The Almanac of Higher Education, 1992, p. 96 and figures on inflation from CPI: Detailed Reports December 1990 and December 1991. 1993

percentages from Christine Strobel, "Campus Required to Slice Budgets," UCLA Summer Bruin, July 6, 1992, p. 1.

29. O'Brien, The Dynamics of Postsecondary Expansion, p. 4.

30. CPEC, Higher Education at the Crossroads, p. 37.

31. Gregory G. Lozier and Michael J. Dooris, "Is Higher Education Confronting Faculty Shortages?," Paper presented at the Annual Meeting of the Association for the Study of Higher Education, 1987.

32. Michael D. McGuire and Jane A. Price, "Faculty Replacement Needs for the Next 15 Years: A Simulated Attrition Model," Paper presented at the 29th Annual Forum of the Association for Institutional Research, May 1989.

33. William G. Bowen and Julie Ann Sosa, Prospects for Faculty in the Arts and Sciences: A Study of Factors Affecting Demand and Supply, 1987 to 2012 (Princeton: Princeton University Press, 1989), esp. Chap. 7.

34. Bowen and Schuster, American Professors, esp. Chap. 9.

35.. A Report of the Commission on the Future of the State College and Community College Systems, Responding to Change: New Directions for Public Colleges in Massachusetts, March 1992, p. 10; Gene M. Winter and LaVerna M. Fadale, A Study to Identify Academic Personnel Replacement Needs in SUNY Community Colleges and Technical Colleges, Fall 1990; California Postsecondary Education Commission, Planning for a New Faculty: Issues for the Twenty-First Century, Report no. 90-20, September, 1990, p. 12-13; M. Anne Hill, An Examination of Retirement Patterns and The Age Distribution of Faculty in Public Higher

Education in New Jersey, Department of Higher Education, April 22, 1988; George H. Davis, "Recruitment and Retention of Faculty, 'An Imperiled National Resource,'" in The Final Report and Working Papers of the Arizona Board of Regents Task Force on Excellence, Efficiency, and Competitiveness, November, 1988, vol. 2, pp. 1386, 1389-1392.

36. Ronald G. Ehrenberg, "The Annual Report on the Economic Status of the Profession, 1990-91," Academe: Bulletin of the American Association of University Professors (March/April, 1991), p. 11. Despite the short-term impact of the 1990-92 recession on faculty hiring, William G. Bowen and Neil Rudenstine, In Pursuit of the Ph.D (Princeton: Princeton University Press, 1992), pp. 2-3 note that "since the main underlying trends in the age distribution of the present faculty and in the size of the college-age population are unchanged, we see no reason to modify our sense that serious staffing problems should be anticipated by the late 1990s."

37. Cf. Claus Offe, Contradications of the Welfare State (Cambridge, Ma.: M.I.T. Press, 1984).

38. Kent Halstead, State Profiles: Financing Public Higher Education, 1978 to 1989 (Washington, D.C.: Research Associates, 1989), p. 41 recommends this definition of efficiency because it "avoids the distraction which excess concern for results frequently introduces into any serious attempt to cut costs."

39. Cf. Paul T. Brinkman and Larry L. Leslie, "Economies of Scale in Higher Education: Sixty Years of Research," The Review of Higher Education, Vol. 10, No. 1 (Fall 1986): 1-28.

40. Halstead, State Profiles, 1978 to 1989, pp. 41-43.

41. CPEC, Planning for a New Faculty, p. 1.

42. Quoted in ULCA Summer Bruin, July 5, 1992, p. 1.

43. CPEC, Planning for a New Faculty, pp. 2-5.

44. Emily P. Hoffman, "A Review of Two Studies of Elasticity in Academe," Economics of Education Review, Vol. 5, No. 2 (1986), pp. 220-21.

45. Ronald Ehrenberg, Hirschel Kasper, and Daniel Rees, "Faculty Turnover at American Colleges and Universities: Analyses of AAUP Data," Economics of Education Review, vol. 10, no. 2 (1991): 99-110.

46. CPEC, Planning for a New Faculty, p. 2.

47. Daniel S. Hamermesh, "The Annual Report on the Economic Status of the Profession, 1991-92," Academe: Bulletin of the American Association of University Professors, (March-April 1992), p. 9.

48. Karen Grassmuck, "Columbia University Uses Philosophy of 'Selective Excellence' to Make Painful Cuts in Programs, Administration," The Chronicle of Higher Education, April 25, 1990, p. 1; DePalma, "Short of Money, Columbia University Weighs How Best to Change," pp. 1, 25. Cf., CPEC, Higher Education at the Crossroads, pp. 7-8, proposes a contingency plan of selective excellence for the California system "if there is no relief from the spending limitations" (p. 7-8). Likewise, Roger L. Caldwell, "Future Changes: Implications for Arizona's Universities," The Final Report and Working Papers of the Arizona Board of Regents Task Force on Excellence, Efficiency, and Competitiveness, vol.

2, pp. 964 concludes that "resources will become more difficult to obtain," therefore, "continued interest in excellence and competitiveness will require that resources be focused in few areas."

49. Academy for Educational Development, Inc., Developing a Process Model for Institutional and State-Level Review and Evaluation of Academic Programs (Washington, D.C.: Ohio Board of Regents, 1979) For example, Office of the Commissioner of Higher Education, Issues in Montana Higher Education: A Report Requested by the Montana Board of Regents of Higher Education, October, 1986, Chap. 12-13; Report on Colorado Commission on Higher Education's Program Discontinuance Responsibility, July 1987.

50. For example, Jeff Ristine, "Faculty Urges Day to Spare SDSU Jobs," San Diego Union-Tribune, June 12, 1992, pp. B1, B4; "UMass Drops 13 Majors at Dartmouth," Providence Journal-Bulletin, May 9, 1992, p. A3.

51. Reported in "Cornell Faculty Panel Urges Cuts in Jobs So Pay Can Go Up," The Chronicle of Higher Education, December 6, 1989, p. A25.

52. CPEC, Planning for a New Faculty, p. 7.

53. Responding to Change, p. 10.

54. "Cornell Faculty Panel Urges Cuts," p. A25.

55. Davis, "Recruitment and Retention of Faculty," pp. 1386, 1392. Similarly, Caldwell, "Future Changes," pp. 963-65, projects that "academic programs (teaching and research) will shift slowly to include more interdisciplinary studies....those

universities that have flexibility to allow new programmatic structures will be at a competitive advantage.".

56. Robert L. Carothers, "Earthquake in Kingston," URI Alumnus, (Spring 1992): 20-22; D. Morgan McVicar, "Carothers Urges Massive Overhaul at URI," Providence Journal-Bulletin, January 18, 1992, pp. A1, A6. According to Carothers, the main impetus for the proposal is funding: "URI has lost the capacity to support all its programs and to maintain its buildings and grounds," p. A6.

57. Responding to Change, p. ii. The report emphasizes that "the responsibility to use public funds efficiently, avoiding unnecessary duplication and achieving high levels of quality and productivity, requires that the educational system must make choices about what programs to make available, where to offer them" (p.7).

58. Ibid., pp. 8-11. Such an arrangement would achieve maximize economies of scale within institutions and minimize unnecessary program duplication between institutions. In addition, as the university tier reemphasizes its research mission, and the state colleges adopt a professional mission, more and more lower-division undergraduate instruction can be shifted into lower cost community colleges.

59. Two of the nine colleges already specialize in the arts and maritime professions, respectively. The one predominantly liberal arts state college in Massachusetts has embraced the commission proposal and is now moving to safeguard its focus area, B. J. Roche, "State College Seeks Liberal Arts Niche," The

Boston Globe, July 26, 1992, pp. 21, 27.

60. On the postindustrial labour process, see Michael J. Piore and Charles F. Sabel, The Second Industrial Divide (New York: Basic Books, 1984); Larry Hirschorn, "The Post Industrial Labour Process," New Political Science, Vol. 2, No. 3 (1981): 5-47.

61. Janice Newson and Howard Buchbinder, The University Means Business: Universities, Corporations and Academic Work (Toronto: Garamond Press, 1988), p. 71.

62. The objective criteria for identifying a new interdisciplinary core faculty could include the holding of a Master's degree in a field other than one's department, graduate "minors" and cognate coursework, paper presentations at disciplinary conferences outside one's departmental affiliation, or simply a publications list that includes journal articles in fields other than one's Ph.D.

63. Daniel S. Cheever, Jr., "Higher (and Higher) Ed," The Boston Sunday Globe, April 26, 1992, p. 75.

64. Office of the Chancellor of Higher Education, Commitment to New Jersey's Future: A Five-Year Agenda for Higher Education, Revised Draft, June 29, 1987, pp. 11-12. The report suggests that "as new technologies emerge...we should investigate the ways in which they can be constructively applied to improve the efficiency of learning, research, and student services...to avoid program duplication, to increase administrative efficiencies and to encourage inter-institutional cooperation" (p. 34).

65. Stephen C. Ehrmann, "Challenging the Ideal of Campus-Bound Education," Educom Review, Vol. 27, No. 2 (March/April 1992): 24-27.

66. Steven Chatman and Loren Jung, "Concern About Forecasts of National Faculty Shortages and the Importance of Local Studies," Paper Delivered at the Annual Forum of the Association for Institutional Research, May 26-29, 1991, p. 14.

67. A cautionary note is sounded by CPEC, Higher Education at the Crossroads, p. 43 which finds that "new educational technologies are still some 10 or 15 years away from being implemented in higher education on a wide scale for the purpose of providing a free-standing alternative to traditional means of delivering educational services." Also see, CPEC, Technology and the Future of Education: Directions for Progress, Commission Report 89-27, September, 1989.

68. Randolph Bromery, System and Partnership: A Regional Initiative in Massachusetts Public Higher Education (A Report to the Board of Regents), January 18, 1991.

69. Anthony Flint, "Sharing Proposed For State Colleges: Reorganization Would Form Clusters," The Boston Globe, September 10, 1990, pp. 1, 6.

70. Joseph M. Cronin and Samuel O. Thier, "Partnerships Help Contain Higher Ed Costs," The Boston Sunday Globe, July 5 1992, p. 73. The "Fenway University" concept is being pioneered by Emmanual College, Wheelock College, Simmons College, and the Massachusetts College of Art.

71. Chancellor of Higher Education, Commitment to New

Jersey's Future, pp. 14-15.

72. Barbara A. Lee, "Faculty Trends and Projected Needs," New Directions for Institutional Research, Vol. 10, no. 40 (December 1983), pp. 37-38.

73. There is evidence in the professional associations that faculty have already begun moving toward interdisciplinary flexible specialisations. For example, in the American Political Science Association, the number of specialised "organized sections" has grown from from six in 1984 to twenty-six in 1992. In 1984, none of the organized sections was interdisciplinary, but by 1992 seven ((27%) of the organized sections were devoted to focus areas such as Politics and Literature, Politics and History, Political Economy, Women and Politics, Politics and the Life Sciences, Science and Technology Politics, and Religion and Politics. In addition, the American Political Science Association and the American Historical Association have adopted procedures to facilitate dual membership in the associations.

74. Robert E. Roemer and James E. Schnitz, "Academic Employment as Day Labor: The Dual Labor Market in Higher Education," Journal of Higher Education, Vol. 53, No. 5 (1982), p. 515.

75. Michael Piore, "The Dual Labor Market: Theory and Implications," in David C. Gordon, ed., Problems in Political Economy: An Urban Perspective (Lexington, Ma.: D.C. Heath, 1971), pp. 90-94 and H. Baron and H. Bennet, "The Dynamics of the Dual Labor Market," in Idem., pp. 94-101.

76. Roemer and Schnitz, "Academic Employment as Day Labor,"

p. 515.

77. Carnegie Commission on Higher Education, The More Effective Use of Resources (New York: McGraw-Hill, 1972), pp. 111-17.

78. Judith J. Thomson and Terrance Sandalow, "On Full-Time Non-Tenure-Track Appointments," AAUP Bulletin (September 1978): 267-73.

79. Roemer and Schnitz, "Academic Employment as Day Labor," p. 519.

80. Ibid., p. 523; Martin Finkelstein, "Life on the 'Effectively Terminal' Tenure Track," Academe: Bulletin of the AAUP, Vol. 72, No. 1 (January-February 1986): 32-36; Bowen and Schuster, American Professors, pp. 151-52.

81. "The Status of Part-Time Faculty," Academe: Bulletin of the AAUP, Vol. 1967, No. 1 (1981), p. 29.

82. NCES, Digest of Education Statistics, 1991, p. 218.

83. David W. Leslie, Samuel E. Kellams, and G. Manny Gunne, Part-Time Faculty in American Higher Education (New York: Praeger Publishers, 1982), pp. 28-32.

84. Ibid., pp. 28-32.

85. Kenneth P. Mortimer, Marque Bagshaw, and Andrew T. Masland, Flexibility in Academic Staffing: Effective Policies and Practices, ASHE-ERIC Higher Education Report No. 1, 1985.

86. For instance, The University of Massachusetts Board of Trustees registers a complaint in its latest strategic planning document that "locked resources" (80% of it in salaries and benefits) has left the institution with "little or no flexible

funding" as it faces a period of "prolonged fiscal uncertainty and stress."Planning to Plan, p. 25; Similarly, in defending the termination of programs and tenured faculty in the California State University System, Chancellor Barry Munitz, has cited repeatedly the need for "increased management flexbility" as the system slides into fiscal crisis, Jeff Ristine, "SDSU Plans to Mail 190 Pink Slips," The San Diego Union-Tribune, June 6, 1992, pp. 1, 15; Ristine, "Faculty Urges Day to Spare Jobs," pp. 1, 4.